RE+PP 646

10-23
(May 1929)

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

GRAND TETON NATIONAL PARK

Indexed

FILE NO.

FOREST PEST CONTROL PROJECT

1950

IMPORTANT

This file constitutes a part of the official records of the National Park Service and should not be separated or papers withdrawn without express authority of the official in charge.

All Files should be returned promptly to the File Room.

Officials and employees will be held responsible for failure to observe these rules, which are necessary to protect the integrity of the official records.

ARNO B. CAMMERER,
Director.

U. S. GOVERNMENT PRINTING OFFICE 6—7410

Forest Insect Laboratory
Coeur d'Alene, Idaho

March 9, 1951

Superintendent
Grand Teton National Park
Moose, Wyoming

Dear Sir:

We have received from your Omaha office, a copy of Mr. Fraser's report of the Grand Teton National Park control project. This is an excellent report. Mr. Terrell and I wish to commend Mr. Fraser for the painstaking work devoted to it. This report contains a lot of valuable information. As Mr. L. W. Orr of Ogden, Utah, will be in charge of future work on the Grand Teton Park, we are regretfully forwarding ~~a~~ the copy of Mr. Fraser's report to him.

Sincerely yours,

James C. Evenden
Entomologist in Charge

cc: Park Service, Omaha

RECEIVED
MAR 12 1951
U. S. DEPARTMENT OF AGRICULTURE
Forest Insects Laboratory
Ogden, Utah

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
REGION TWO
OMAHA, NEBRASKA

JAN 18 1951

Mr. James C. Evenden
Senior Entomologist
Forest Insect Laboratory
Coeur d'Alene, Idaho

Dear Mr. Evenden:

Attached is a copy of the 1950 Annual Insect Report, Form No. 10-423 Summarized, for Grand Teton National Park; and also a copy of the detailed report relating to the 1950 mountain pine beetle control project for Grand Teton National Park and the former Jackson Hole National Monument, prepared by Park Ranger Fraser.

We are especially pleased with the comprehensive manner in which Mr. Fraser has described and illustrated the various phases of last year's insect control activities.

Sincerely yours,

Signed

Frank W. Childs
Regional Forester

Enclosures 2

hes! If you received a copy - with you please return this one

RECEIVED
MAR 12 1951
U.S. DEPARTMENT OF AGRICULTURE
Forest Insects Laboratory
Ogden, Utah

Form No. 10-423

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
WASHINGTON

Grand Teton National Park and Jackson Hole National Monument
(Name of national park or monument)

1950 Annual Forest Insect Report

Name of plant species attacked	Name of attacking insect	Infestation: Location	Infestation: Extent	Infestation: Damage	Infestation: Status	Opening and closing dates for control	Control: Treatment: Last year	Control: Treatment: This year	Control: Treatment: Next year	Estimated total cost next year
1	2	3	4	5	6	7	8	9	10	11
Lodgepole Pine (Pinus contorta, var. murrayana, Loudon)	mountain pine beetle (Dendroctonus monticolae, Hopk.)	1. Signal Mountain	4100 acres 615 trees	Will be killed	Decreased -60%	5/23/50-7/17/50	1070 trees treated	1935 trees	615 trees	**
		2. Burnt Ridge	1800 acres no trees	—	Decreased -100%	6/5/50-7/10/50	*	537 trees	No Control	
		3. Jenny Lake	700 acres 28 trees	Will be killed	Decreased -66%	6/15/50 7/8/50	*	310 trees	No control	
		4. Headquarters	2500 acres 125 trees	" "	Decreased -90%	6/14/50-7/15/50	*	1195 treated	No control	
		5. Windy Point	3000 acres 480 trees	" "	Decreased -61%	5/30/50-7/15/50	131 trees	560 treated	480 trees	
		6. J. Y. Ranch	600 acres 622 trees	" "	No change	6/30/50 7/14/50	1335 trees	340 treated	622 trees	
		7. Timbered Island	600 acres 72 trees	" "	no change	~~15/50-5/15/50~~ 6/17/50	79 trees treated	197 trees treated	72 trees	
		8. Blacktail Butte	250 acres 77 trees	" "	Decreased -78%	6/22/50 7/1/50	*	236 treated	77 trees	
		9. Jackson Lake	6000 acres 0 trees	" "	Decreased -69%	6/23/50 7/14/50	*	720 treated	no control	
		9A. Jackson Lake	2000 acres 280 trees	" "	Decreased -87%	6/6/50-7/17/50	*	1435 treated	280 trees	
		11. Moran 12. Hermitage Point	9200 acres 368 trees	" "	Decreased -60%	5/31/50-7/11/50	—	724 treated	no control	
		13. Lava Creek	1800 acres 0 trees		Decreased -60% -100%	—	—	693 treated	no control	

* Marginal control measures only

** Approximately $40,000 for all areas

Date or period of survey August 2 Through September 30, 1950
Made by B. E. & P. O. Crews

Unit of survey All areas
(Park at large, ranger district, biological control unit)

Method of survey Sample strips
(General observations, systematic examination by campgrounds, strips, plots, watersheds, tree census, or otherwise)

Submitted by Joseph E. Fraser

Title Park Ranger

Date December 1, 1950

INSTRUCTIONS FOR PREPARING REPORT

The report is due not later than November 1 of each year for the preceding 12-month period. If surveys in different control units or ranger districts within a park or monument are made by different individuals, each individual shall make out one of these forms, together with an accompanying narrative report.

Distribution of copies:

Original: Regional Director, attention Regional Forester.

One copy: Director, attention Chief of Forestry.

One copy: Entomological Field Representative, Bureau of Entomology and Plant Quarantine.

One copy: Park or monument files.

This report is to be supplemented with a detailed narrative report in accordance with the attached outline and also with a map showing the location of any new infestation or infestations of epidemic proportions.

All infestations within a park are to be reported on one sheet, unless additional space is needed, except the following:

1. Infestations of epidemic proportions, which should be reported on separate sheets.
2. Surveys made by different individuals, which should be reported by each individual on separate sheets.
3. Surveys made by ranger districts or biological control units which should be reported on separate sheets for each ranger district or biological control-unit concerned.

EXPLANATION OF COLUMN HEADINGS

1. State scientific and/or common name or names of tree, shrub, or other plant species attacked by the insect.

2. State scientific and/or common name of the insect, if known. If unknown, so state, and indicate its general type, whether bark beetle, borer, defoliator, leaf miner, gall aphis, budworm, twig pruner, etc.

3. Indicate whether infestation is general throughout the park or restricted to certain stated areas. Reference the site of the infestation to geographical or cultural features that are commonly known and named on the official map of the park. Examples are: Summit of Beech Knob; Battery 5; Tuolumne Meadows; Shirttail Canyon; Whitman Creek; Campground No. 12; etc.

4. If infestation is limited or confined to a few scattered trees, state number of trees attacked. If restricted to roadsides, state miles of same affected. If widespread state acreage and average number of trees per acre attacked.

5. Indicate severity of damage caused by the infestation. State whether trees are killed, dying, weakened, defoliated, or otherwise injured by the insect as a primary cause.

6. State whether infestation is a new or old one. If old indicate whether it has increased, decreased, or remained the same since last year.

7. State approximate opening and closing dates of applied control.

8. State what treatment was applied last year, if any, and to what extent it was responsible for any change indicated in column 9.*

9. State what treatment was applied this year, if any, and to what extent it appears to have been effective.*

10. State what treatment is recommended for next year, if any.*

11. Indicate approximate cost in man-days and materials separately of treatment recommended under column 10.

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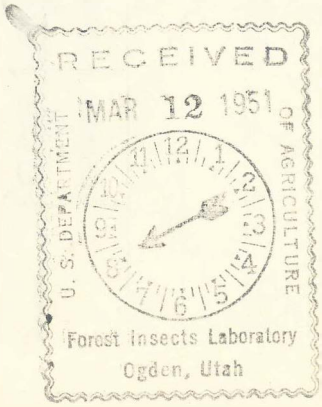
* Give exact formula of any sprays or chemicals used or recommended, or indicate S. F. number as listed in Tree Preservation Bulletin No. 6. State also date or dates of application.

U. S. GOVERNMENT PRINTING OFFICE 6—9921



REPORT

of the

1950

PARK-MONUMENT

FOREST PEST CONTROL PROJECT

Forwarded Approved:

Edward D. Freeland
Park Superintendent
Grand Teton National Park

Paul A. Judge
Chief Park Ranger
Grand Teton National Park

Submitted January 5, 1951, by

Joseph H. Fraser
Park Ranger
(Acting Project Superintendent)
Grand Teton National Park

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ADDENDA:
Form No. 10-423
Maps

THE PROJECT IN GENERAL

The 1950 mountain pine beetle (Dendroctonus monticolae, Hopk.) control measures conducted on the Grand Teton National Park and Jackson Hole National Monument infested areas marked the fourth year of the Park-Monument's participation in the Targhee-Teton control project.

Early control plans were made at interagency strategy meetings between personnel of the National Park Service, the Forest Service, and the Bureau of Entomology and Plant Quarantine held at Ogden, Utah. The principle purposes of the meetings were to analyze the fall surveys, make recommendations for control work, and to prepare preliminary estimates for 1950 control work. The results of the meetings were previously submitted and will not be repeated in this report.

Surveys of the Park-Monument areas completed during the 1949 Fall indicated there were 12,500 newly infected lodgepole pine (Pinus contorta, var. murrayana, Loudon) trees over an approximate area of 34,000 acres which would have to be treated to avoid a sacrifice of all control work gains accrued during the three previous years.

The techniques, standardized by the Bureau of Entomology and Plant Quarantine, for control of the mountain pine beetle were used in treating the standing trees, and the work was carried on as economically as was practically possible. Although this years operations were directed against an apparent, rapidly increasing beetle population, and adverse weather conditions with late, heavy snows handicapped our plans for an early program start, the 1950 Fall survey shows our work to have been truly effective, and an infestation reduction of approximately 73%. It is hoped that the thorough job next spring will reduce the infestation to an endemic stage and a mass killing of lodgepole pine trees in the Yellowstone and Grand Teton National Parks will have been averted.

During the project 8,745 trees were treated on approximately 34,700 acres.

Our insect control program greatly benefited by Chief Forester Coffman's June 20-25 inspection.

We wish to express our thanks and to reiterate our appreciation and gratitude here for the continued cooperation of other interested parks, agencies and individuals.

1950 POST CONTROL SURVEY

The 1950 post control survey averaged 4.5% of the areas covered and was conducted from August 2 through September 30 by Bureau of Entomology and Plant Quarantine crews under the direction of Mr. T. T. Terrell. Not only the Park-Monument areas were covered by the survey but also part of the area between Arizona Creek and Yellowstone's West Thumb. The latter area was clean of infestation.

The results of the survey, as shown by the following chart, indicate an infestation reduction on the Park-Monument areas of approximately 73%

Unit	No.	Approx. Acres Type	1950 Attacks Per Acre	1950 Infestation	% Change From 1949
Signal Mountain	1&1A	4100	.15	615	-60
Burnt Ridge	2	1800	0	0	-100
Jenny Lake	3	700	.04	28	-66
Headquarters	4	2500	.05	125	-90
Windy Point	5	3000	.16	480	-64
J. Y. Ranch	6	4150	.15	622	0
Timbered Island	7	600	.12	72	0
Blacktail Butte	8	250	.31	77	-78
Jackson Lake	9A	2000	.14	280	-87
Jackson Lake	9	6000	.05	300	-69
Snake River	10	300	.07	21	-92
Hermitage Point	11&12.	9200	.04	368	-60
Lava Creek	13	1600	0	0	-100
		36,200		2,988	

ORGANIZATION AND PROJECT OPERATION

Early planning was directed toward the goal of completing control work between May 15 and July 1, but due to adverse weather we were unable to start actual work until May 23 and then only on a very limited scale. We carried on large scale operations through July 15 and limited, clean-up operations through July 17, before the beetle emergence halted all treating.

An interagency meeting was held at Ogden, Utah during the period November 29-30, 1949 for the purpose of analyzing the 1949 Fall surveys, and during another meeting held April 13-14, 1950 definite preliminary plans for the 1950 season's work were formulated. The major problem settled was that of the division of funds between the Forests for May, and the division of funds between the Forest Service and the Park Service for the month of June. A problem concerned the division of funds so as to accomplish the most good, as it was thought the funds to be alloted and proposed for these months were to be far short of the total estimated needs of the two agencies.

Regional Forester Childs assisted with the prosecution of the program's work from May 22 through June 23. He worked long, hard hours to help engender a greater project efficiency, and a complete infestation control is much nearer due to Mr. Child's advice, technical assistance, and experience.

Ranger Joe Fraser was detailed as Acting Project Superintendent and the Regional Office made arrangements with the Glacier and Yellowstone National Parks to detail one ranger each to aid with the control work. Ranger Bruce Miller was detailed from Glacier and Ranger Paul Wykert from Yellowstone. The Washington office recommended the services of Ben Hadley, Jr. We have nothing but praise for the work of these men.

In the recruitment of both key personnel and labor we found very little local interest and therefore contacted other neighboring National Parks for possible lists of good men, available at an early date, and whom the other parks would be unable to offer summer employment. We also contacted colleges having Forestry, Range Management, etc. Schools and were able to secure the services of good men through these sources.

A Headquarters camp and two field camps were proposed in our earlier planning but when it appeared that funds sufficient for our

needs would not be alloted it was decided to combine one of the proposed field camps with the Headquarters camp in order to work within our allotment, and to treat the entire South area from the Headquarters camp. Other adjustments were also made.

Our new shower-toilet combination building at the Headquarters proved to be a tremendous relief as compared to the usual old wooden out-buildings used before.

The insect control crews working out of the Headquarters area lived in tents and shared the use of the mess hall with the regular park crews. The orthodichlorobenzene-diesel oil mixing plant was again located at the Headquarters and was used to supply both the North and South areas. We attempted to maintain radio contact between Headquarters and the Pilgrim Creek field camp, but interference caused this means of communication to be quite unsatisfactory.

Ranger Bruce Miller was responsible to and assisted the Project Superintendent in the program's training operations, and in directing all insect control activities applicable to the South control area. He was also responsible for the chemical mixing plant and arranged for the distribution of the spray to all units.

The Pilgrim Creek field camp was located six miles above Moran on Pilgrim Creek. The purpose of establishing the camp at this point was to more readily control the North area (Hermitage Point, Moran, Signal Mountain and Jackson Lake). All insect control personnel spent three days, May 17-19, at the proposed location of this outlying camp shoveling three feet of snow from the site to aid melting conditions, which action permitted us to start building the camp on May 22 and completing the job May 27.

Ranger Paul Wykert supervised and coordinated all forest control activities of the North area. Besides Wykert the personnel at Pilgrim Creek consisted of a camp boss, a cook, a second cook, two kitchen helpers, a campman, and eight crews.

There were fourteen quarters tents, an office tent, a cook tent adjoining the mess tent, a supply tent, a latrine, and a temporary wooden shower building with hot and cold water. The water supply was brought into camp from a spring through a settling box and 800 feet of two inch fire hose. The water was sampled regularly and the samples sent to the Wyoming State Department of Health Laboratories at Cheyenne for testing and was found to be satisfactory.

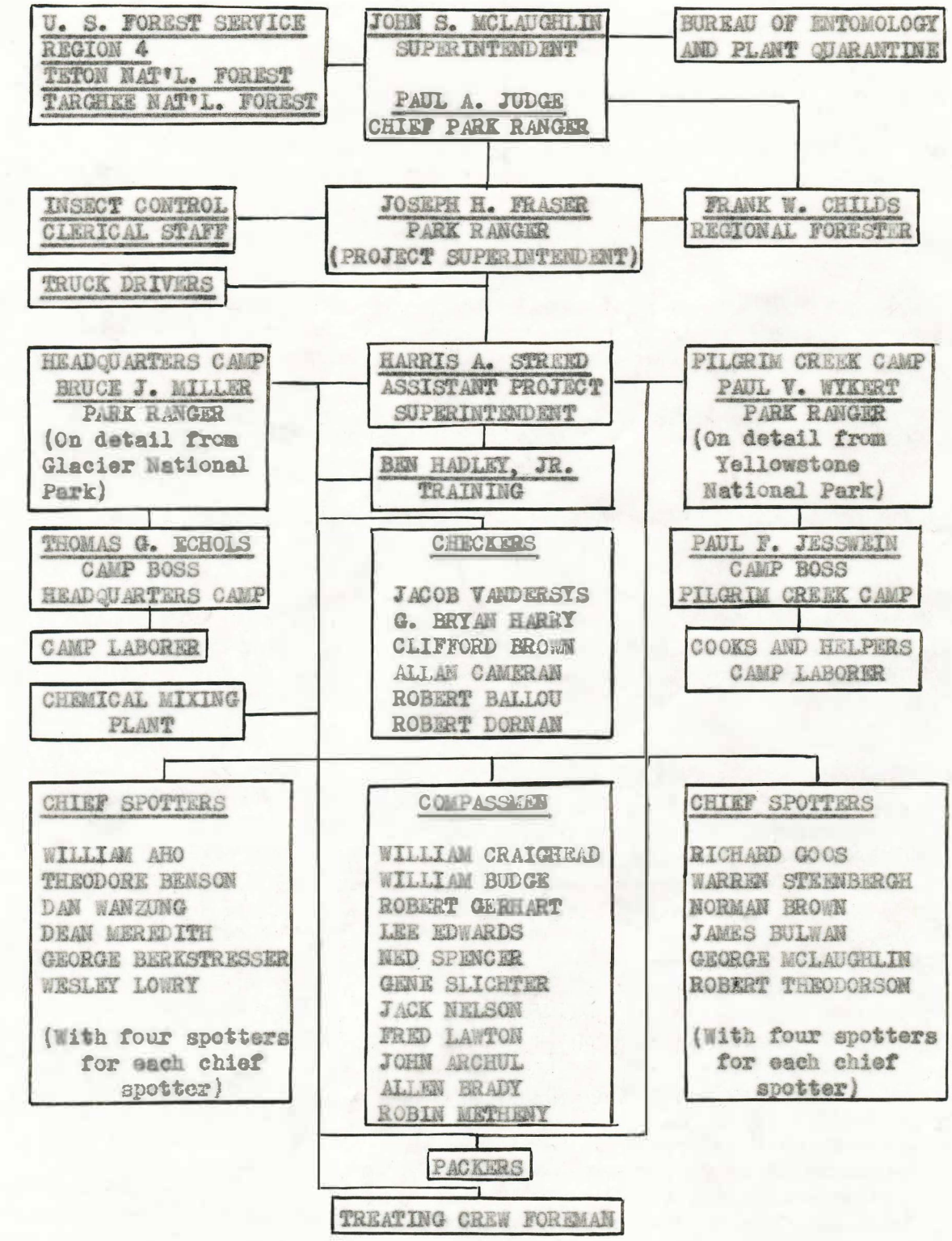
A small light plant was used to furnish lighting for the cook, mess, office and recreational tents. The recreational tent served as a reading room and a place for the men to do their correspondence.

On May 30 four crews were put into the Hermitage Point area for spotting-treating combination action, and four crews were started spotting on the Signal Mountain and Jackson Lake areas in preparation of treating by contractual services. The Pilgrim Creek camp became ineffective July 3 and was closed down. Camp dismantling was completed July 10.

The Forest Service helped us again this year by including some of our needs in their procurement program, by loaning us two 30-man blister rust control camps and a 1600 gallon storage tank, and by renting us two jeep pick-up trucks.

An organizational chart is presented on the following page.

ORGANIZATION CHART
FOREST PEST CONTROL PROGRAM
GRAND TETON NATIONAL PARK AND JACKSON HOLE NATIONAL MONUMENT



FOREST PEST CONTROL POSITION DESCRIPTIONS

The following descriptions are of the positions shown in the Organization Chart of page 6.

Park Superintendent, John S. McLaughlin: Position is self-explanatory.

Chief Park Ranger, Paul A. Judge: Responsible to the Park Superintendent for the conservation and protection of land, vegetative cover and developments of the Park and Monument.

U. S. Forest Service, Region Four, Teton National Forest and Targhee National Forest: Cooperating with the National Park Service on the Teton-Targhee forest pest control project.

Bureau of Entomology and Plant Quarantine: Technical advisory agency for the Teton-Targhee forest pest control project.

Regional Forester, Frank W. Childs: (On detail from the Regional Office through noon June 23. Responsible to the Superintendent and advises and assists the project superintendent with special assignments of coordinating activities with other cooperating Government agencies, safety, fire protection, camp planning and management and technical assistance as required.

Project Superintendent, Joseph H. Fraser: Responsible to the Park Superintendent and the Chief Park Ranger for the planning, supervision, administration and coordination of all forest pest control activities in the Grand Teton National Park and the Jackson Hole National Monument, and in such portions of the Teton National Forest wherein insect control activities can be more economically handled by National Park Service crews; coordinates project activities with those of the U. S. Forest Service and as recommended by the Bureau of Entomology and Plant Quarantine. Conducts surveys when necessary, prepares estimates, directs insect operations, prepares progress and completion reports as required by the Service or as recommended by the Bureau of Entomology and Plant Quarantine.

Assistant Project Superintendent, Harris A. Stroed: Responsible to the Project Superintendent for the coordination of all field activities of both the North and South control areas. Programs the work of all checkers and is responsible for locating unit control lines in advance of all spotting and treating crews. Supervises and inspects the work of all spotting crews and treating crews, and makes certain that all checkers are faithfully carrying out their assignments. Checks daily progress reports and progress maps, coordinates and verifies the progress records submitted for both the North and South control units.

Park Ranger, Bruce J. Miller: (On detail from Glacier National Park). Responsible to and assists the Project Superintendent in training all Chief Spotters, Checkers, Compassmen and laborers entering on duty. Directs all insect control activities applicable to the South control area operating from the Headquarters camp. Supervises the chemical mixing plant and arranges for the distribution of chemicals to all crews operating in the Park and Monument. Directs and supervises the activities of the Headquarters Camp Boss.

Park Ranger, Paul V. Wykert: (On detail from Yellowstone National Park). Responsible to the Project Superintendant for the supervision and coordination of all forest insect control activities of the North control area. Also supervises and directs the activities of the camp boss of the Pilgrim Creek Camp. Prepares daily progress reports, checks the time slips and mess records and makes certain that all required camp records and progress reports are submitted to the Headquarters control office daily, or as required. Checks safety requirements and fire prevention measures.

Camp Boss of Headquarters Camp, Thomas G. Echols: Responsible to Park Ranger Miller for camp activities, including safety and sanitation applicable to the Headquarters camp and to the Project Superintendent and Assistant Project Superintendent for maintaining progress reports, vehicle servicing records, accident reports, equipment distribution records and other records and assignments as may be prescribed and applicable to all insect control activities in Grand Teton National Park and Jackson Hole National Monument.

Camp Boss of Pilgrim Creek Camp, Paul F. Jesswein: Responsible to Park Ranger Wykert for camp activities, including safety, sanitation, mess operations, radio schedules, and ordering of all supplies required for the operation of the Pilgrim Creek camp. Maintains and furnishes the Headquarters control office with reports and records pertaining to the North control area. Supervise all mess-kitchen activities and directs the camp overhead.

Checker, Insect Pest Control Aid: Under general supervision of the Assistant Project Superintendent and in accordance with instructions and established procedures he must make spot checks of the work of the spotting crews; make spot checks of the work of combination spotting-treating crews; check every tree, marked by spotting crews and treated through contractual services to ascertain that the treating standards set up by the contract are upheld in the best interests of the Government; he must report all deviations from prescribed techniques to his supervisor, and indicate on a field map the exact location of every tree found not to have been treated or improperly treated. Al-

though his work is closely prescribed by procedure and reviewed by his immediate supervisor, he must be totally reliable because when he is actually performing his duties he is not closely supervised, and considerable reliance is placed upon him to ascertain the thoroughness of the work he is checking. He will perform other duties as assigned.

Chief Spotter, Supervisory Insect Pest Control Aid: Has responsibility for the efficient and safe operation of a six-man spotting crew, or if the combination spotting-treating method is used he is responsible also for the actions of a packer and pack string. He will supervise the establishment of fixed lines through wooded areas and will be responsible for locating and marking all trees infested with mountain pine beetle. It is his duty to see that the spotting crew operates under systems as established by representatives of the Bureau of Entomology and Plant Quarantine. He will be responsible for the proper marking of all infested trees through personal inspection of strips run in the areas assigned. He is responsible for the preparation of field maps indicating the location of all trees spotted and marked for the action of the treating crews.

Compassman, Insect Pest Control Aid: This position will be the advance man for all insect control crews. His duties will consist of running compass lines by pacing with hand compass on azimuth or quadrant bearings, and laying string lines through the infested areas as prescribed by his supervisor or by the chief spotter. He may be required to prepare field maps in connection with his work. In our work here the compassman is actually the man who prepares the field maps.

TRAINING

In the initial training of our overhead we were assisted by Messrs. James C. Evenden, Tom Terrell, Leslie Orr, and Robert Denton of the Bureau of Entomology and Plant Quarantine.

Park Ranger Miller and Mr. Ben Hadley, Jr. were responsible for the training of all chief spotters, compassmen, checkers, and laborers entering on duty, and they accomplished an excellent training job by using the following training outline suggested by the BE &PQ.

A.

a. Who will be trained?

1. Project Superintendent.
2. Assistant Project Superintendent (Also acts as Safety Officer).
3. Camp Superintendents.
4. Camp Bosses.

B. a. Project History.
b. Project goal.
c. Relationship of BE&PQ and Park Service responsibilities.
d. Project organization--lines of responsibility.
e. Set tree treated per man day or acre treated per man day goal.
f. Safety, responsibility and authority of Safety Officer.

C. Mountain Pine Beetle.

a. Importance of Forest Insects.
b. Forest losses from mountain pine beetle.
c. Response to control.
d. Life history of mountain pine beetle.
e. Description of insect, brood, flight, habits.
f. Samples of infested logs.

D. Organization.

a. Cover supervisory organization of project briefly starting with Park Superintendent.
b. Chart positions, lines of authority.
c. Discuss each position--show relationship, be certain that each man knows his job and responsibili-

D. c. continued.
ties. Give each man a written description of his job. Repeat each point.

d. Records and reports required.

E. Training.

a. Outline training program for personnel.
b. Tell how men will be trained and by whom.
c. Describe follow-up training and by whom.

F. Crew Organization.

a. Brief history of spotting crew development.
b. String lines.
c. Compassman. His job.
d. Spotting crew. How it works.
e. Treating crew. Foreman, treaters, packers.
f. Combination spotting-treating crew. Advantages.
g. Checker. His job. Reports.

G. Field Demonstration of Crew Organization.

a. Show previously laid string lines.
b. Organize spotting-treating crews.
c. Spot and treat trees.
d. Discuss hazards of job.
e. Training spotters, treaters in the spotting job, insect identification, infested tree recognition and crew formation.
f. Training the spotters, treaters in the treating job. Change from spotters to treaters. How trees are sprayed correctly.
g. Packers and their safety instructions--both for packers and the pack strings.

H. Field Practice.

a. Insect identification of mountain pine beetle and secondaries.
b. Recognition of attacked trees and pitched out attacks, blind attacks and windfall attacks.
c. Lay string line and map course. Tag lines.
d. Spot and treat trees. Repeat treatment.

This will be the actual practice of all the operations on which the project overhead must be prepared to train crews, and on which they will later have to make day to day checks. Be sure to have all necessary working tools--hand axes, string, map sheets, first aid kits, compasses, treating equipment, etc.

CREW TRAINING.

A. Orientation Class.

a. History of project--interested agencies and their relationship--Park Service policies and regulations. Protection of fauna and flora. FIRE PREVENTION!! Relationship with visiting public. Values and goal.
b. Mountain pine beetle. Life history. Past outbreaks.

B. Safety Class.

a. Object of safety practices.
b. Safety Officers place in organization and his responsibility.
c. Line of responsibility of each worker and his supervisor.

C. Insect Identification.

a. Mountain pine beetle and brood. Gallery pattern.
b. Secondaries. Insects and gallery pattern.
c. Infested tree recognition. Successful attacks. Pitched out attacks. One sided attacks and windfall attacks.

D. String Layers.

a. Compass work.
b. Laying string lines. Tags on lines.
c. Mapping string lines.

E. Spotters-Treaters.

a. Crew organization and movement forward.
b. Finding the tree--change over from spotting to treating.
c. Treating the tree. Demonstrative treatment. Have all members spray. Point out errors.
d. Activity of all members when one tree is found. Who gets pump? Oil? Who sprays tree.
e. Crew activity when several trees are found in a group.
f. Packers job. Responsibilities.

Crews formed and start actual work under instructor. Instructor should

finish and qualify or remove each man by end of training period. Meanwhile other crews are being subjected to first day crew training. This training will continue until man power requirements are filled. As the need for instruction lessens for primary training they should follow up working crews to give supplementary training and checking on the job.

Training in safety can not possibly be given thoroughly during the short time given to general training, therefore, safety practices must be kept in the minds of all personnel during the entire program.

SPOTTING

Five standard six-man spotting crews were used for spotting Signal Mountain, Jackson Lake (9 and 9A), Burnt Ridge, and Windy Point. All these areas were treated by contractual services.

Some confusion was caused again this year by the carelessness on the part of some of our chief spotters. A few trees marked for treatment were misplaced on the field maps and, although their work had been inspected by checkers and overhead personnel, the errors were not discovered until the areas involved were being treated by contractors. As the chief spotters making the errors had map work training in college as well as the training received here, the fault apparently lies here in not having a 100 % check made instead of just a sample check.

We find, of the three control methods used here (combination spotting-treating, spotting and treating separately by Government crews, and spotting for treatment by contractual services) the most efficient method of control for this area to be the combination spotting-treating.

The advantages of use of only the combination spotting-treating method of control are:

1. Only one inspection by checkers is necessary, whereas two different inspections of each of the other two methods must be made--one of the spotting process and another of the treating process.

2. The checker has time to make a 100% inspection behind the spotting-treating crews, checking for missed trees and also for thoroughness in tree treating.

3. It will be unnecessary to blaze the treated tree because the checker will be working so close behind the crew that the various animals having the habit of destroying the tags will not have had time to do so before the checker inspects the tree and collects the tag. The tags I refer to are used to identify the attacked tree by number, and gives the information of which crew and person treated the tree.

4. The string lines, used to guide the crews, are not destroyed before the crews are able to cover the area.

5. The entire operation, string laying, spotting, checking of spotting, treating, checking of treating is accomplished in one, instead of five separate processes.

TREATING

In addition to the program's discouragingly late start caused by the unusually late and heavy snows, we received crushing advice from the Bureau of Entomology and Plant Quarantine that the Army was restricting the orthodichlorobenzene supply. However, our Washington Office saved the day for us by not only locating an ortho supply, but by also authorizing us to use the standing-burning method of treating in areas where the scars would not be seen ordinarily by the visiting public and where there would be no danger of spreading fires. Permission was given to burn only until our ortho supply arrived.

The standing-burning method was used safely from May 29 through June 9 to treat approximately 3540 acres and 247 trees. We stopped burning just as soon as we were assured the ortho shipment was on its way and before a danger of fire spread existed, and started treating by the standard method of spraying the standing trees.

There was an average of 2.5 gallons of the diesel oil-ortho insecticidal mixture sprayed on each of the 7,808 attacked trees that were treated by the Park-Monument crews. The treated trees averaged 69 feet in height and 36 inches in circumference.

We estimate there were approximately 721,000 board feet in the 10,664 trees treated (8,745 during the 1950 Spring and 1919 during the 1949 Fall.

A treated tree summary for the 1950 Spring follows:

No.	Area	Trees Treated	Estimated Acreage Treated
1	Signal Mountain	1798	4041
2	Burnt Ridge	537	1473
3	Jenny Lake	310	1413
4	Headquarters	1195	3509
5	Windy Point	560	2208
6	J. Y. Ranch	340	945
7	Timbered Island	197	950
8	Blacktail Butte	236	320
9	Jackson Lake	720	4587
9A	Jackson Lake	1435	1737
11	Moran	54	509

No.	Area	Trees Treated	Estimated Acreage Treated
12	Hermitage Point	670	10,882
13	Lava Creek	693	2,194
	TOTALS	8,745	3[illegible]6

TREATING CONTRACTS AND COST DATA

The treatment of 4,785 trees by contractual services is summarized in the following chart:

No.	Area	Number Trees Treated	Cost Per Tree	Total Cost Contract
1&1A	Signal Mountain	1,726	.89	$1,536.14
9A	Jackson Lake	1,435	.64	918.40
9	Jackson Lake	577	.99	571.23
2	Burnt Ridge	487	.97	472.39
5	Windy Point	560	.90	504.00
	TOTALS	4,785		$4,002.16

3,267 trees were treated by the combination spotting-treating method. Each spotting-treating crew was furnished a pack string consisting of a packer, three pack mules or horses, and a saddle horse. The average cost per animal was$1.83 with the lessor furnishing all pack equipment, shoes and feed.

TRANSPORTATION

At the beginning of our planning it appeared that it would be necessary for us to purchase additional trucks as it is impossible to rent vehicles locally at a reasonable price. Yellowstone again came to our aid by loaning us the busses, and the Forest Service rented us two jeep pick-up trucks for the duration of the control work. Although we were squeezed some times for transportation it proved to be not too serious a problem.

NATURAL CONTROL

Limited observations were made during the spotting process of mountain pine beetle control by natural means which revealed no increase in the natural factors, that is, no increase in the woodpecker population, in the predacious Loncheeidae family, or in the clerids.

OTHER FOREST ENEMIES

An inspection was made of the lodgepole pine trees near the Whitegrass Patrol Cabin which were found to be infected by the needle cast fungus Hypodermella montivaga in 1948, and the infection appears to have died out.

The work of the Ips and of the lodgepole pine beetle Dendroctonus murrayanae was found to be only secondary in nature.

Porcupine destruction of trees does not seem to be as heavy as it has been in the past.

PROJECT SAFETY RECORD

All men were given safety instructions during the period of training. General safety instructions were covered and then each man was acquainted with the safety hazards involved in the particular job to which he was to be assigned. All overhead personnel acted as watchers for any violations of our safety regulations and corrected any such practices when discovered.

We lost three man days caused by minor accidents and five man-days caused by colds. This safety record is believed to be good considering the number of men employed, and further considering that many of these men had never worked in a forest before.

Regional Forester Childs contributed greatly to our low accident rate through his knowledge of safety practices and his ability to instruct others in safety.

PROJECT ACCOMPLISHMENTS

The average total cost per tree of the 7,808 trees treated during the 1950 Program by the Park crews was $9.06. This high cost was due to the high acreage and low infestation rate in the Hermitage Point area.

There were 4881 man-days spent on the project and they are summarized as follows:

Overhead Personnal	353
Camp (Includes cooks, etc.)	426
Ranger Replacement (Wykert, Miller and Fraser)	138

Training	428
String Laying	422
Spotting	855
Spotting-Treating	1671
Checking	273
Clerical	312
TOTAL MAN-DAYS	4,831

A comparative tree and acreage summary for the years 1948, 1949 and 1950 is given on page 19.

GRAND TETON NATIONAL PARK-JACKSON HOLE NATIONAL MONUMENT
MOUNTAIN PINE BEETLE CONTROL PROJECT
COMPARATIVE TREATED TREE AND ACREAGE SUMMARY CHART

UNIT	No.	APPROXIMATE ACRES OF TYPE 1948	1949	1950	INFESTATION 1948	1949	1950	TREATED 1949	1950	% CHANGE FROM 1948	FROM 1949	1950 ATTACKS PER ACRE	ACTION RECOMMENDED SPRING 1951
Signal Mountain	1A1A	3,000	4,100	4,100	1,322	1,517	615	1,070	1935***	+15	-60	.15	Control
Burnt Ridge	2	1,800	1,800	1,800	125	954	0	*	537	+660	-100	0	---
Jenny Lake	3	700	700	700	28	84	28	*	373***	+200	-66	.04	---
Headquarters	4	2,500	2,500	2,500	710	1,250	125	*	1263***	+125	-90	.05	---
Windy Point	5	3,000	3,000	3,000	729	1,320	480	131*	604***	+81	-64	.16	Control
J. Y. Ranch	6	4,150	4,150	4,150	3,949	622	622	1,335	966***	-84	0	.15	Con. 600 A.
Timbered Island	7	600	600	600	114	72	72	79	197	-37	0	.12	Control
Blacktail Butte	8	250	250	250	125	350	77	*	236	+180	-78	.31	Control
Jackson Lake	9	6,000	6,000	6,000				*	720		-69	.05	---
Jackson Lake	9A	2,500	2,000	2,000	510	3,200	280	*	1435	+800	-87	.14	Control
Snake River	10	450	300	300	284	252	21	460	777***	-11	-92	.07	---
Hermitage Point	11A12	---	12,640	9,200	---	1,210	368	---	724	+	-60	.04	---
Lava Creek	13	---	1,600	1,600	---	368	0	---	693	+	-100	0	---
Miscellaneous**	---	---	---	---	---	---	---	294	204****	---	---	---	---
TOTALS		24,950	39,640	36,200	7,896	11,199	2,988	3,369	10,664				

-1,919 Fall Treated
9,280
+3,248 35% Safety Margin
12,528

*Marginal Control Measures Only
**Pot Holes, etc.
***Includes Both 1949 Fall & 1950 Spring Treatment
****All Fall Work

It was decided to terminate major treating activity on July 15 after examination of attacked trees in the unfinished portion of the designated control areas revealed that the beetles had emerged from the majority of the trees examined and were ready to emerge from the rest of the trees examined. A few trees, easily accessible and from which all beetles had not emerged, were treated up to and through July 17

FINANCIAL STATEMENT
PARK-MONUMENT INSECT CONTROL PROJECT
AS OF SEPTEMBER 1, 1950

Direct Project Expenditures:	
Appropriation #14-1202258.020(5)	$86,113.58
Appropriation #14-1212258. (10)	20,000.00
Personal Services:	
A. Supervision	25,273.53
B. Labor	28,920.31
Total Personal Services	$54,193.84
Less Subsistance Reimbursible	3,538.55
Net Personal Services	$50,655.29
Communications	106.88
Contractual Services (Tree Treating)	4,002.16
Other Contractual Services	1,116.15
Rental (Pack Horses & Equipment)	1,304.55
Rental (Two Forest Service Trucks)	318.00
Equipment	1,809.14
Supplies & Materials	17,453.50
Transportation of Things	187.30
Travel (Includes Travel Costs of Men Detailed From Other Parks)	1,046.77
Total Direct Project Expenditures	$77,999.74
Allotment Withdrawals	$15,771.00
Unobligated Balance of Appropriation #14-1202258.020 (5)	10,499.59
Unobligated Balance of Appropriation #14-1212258 (10)	1,843.25
Total Allotments	$106,113.58
Total Direct Project Expenditures	77,999.74
Less Inventory of New Equipment, Supplies & Materials, etc. On Hand & Available For Future Projects	5,000.00
Net Project Cost	$ 72,999.74

RECOMMENDATIONS

We hope that Mr. Evenden, Mr. Orr and Mr. Terrell will again be able to help us with our early overhead training, and it is recommended that, after our early control plans are formulated, a strategy meeting between a Teton Park representative and personnel of the Bureau of Entomology and Plant Quarantine be held at the Bureau's office at Coeur d' Alene, Idaho.

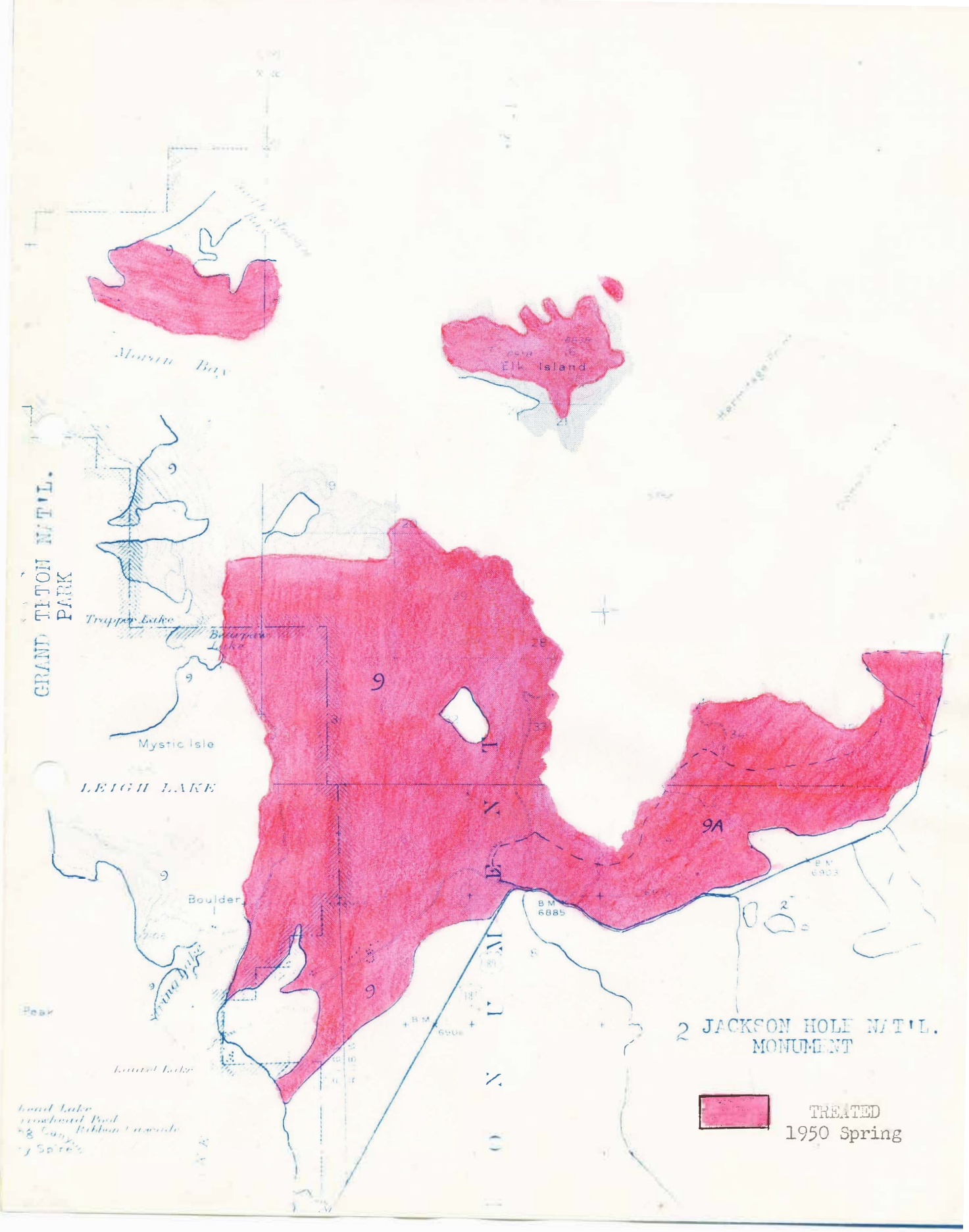
To assure the successful completion of the Teton-Targhee infestation we recommend that a representative of the Regional Forester's office be detailed for at least two weeks to aid with the control work. We will again need the assistance of Park Rangers Miller and Wykert and, if available, of Mr. Ben Hadley, Jr. These three men are very good Park Service men--unafraid of hard work and long hours.

The future availability of good personnel, both overhead and labor, is darkened daily and it is essential that we make every effort possible at an early date to secure the services of good men. It is believed that to assure ourselves of such services that we must be in a position to offer men, qualified both for regular Park Service employment (seasonal park rangers, fire control aids, road and trail maintenance workers, etc.) and Forest Pest Control employment, longer terms of employment than just one months work on insect control work. The control program will benefit from this action, as will the Park.

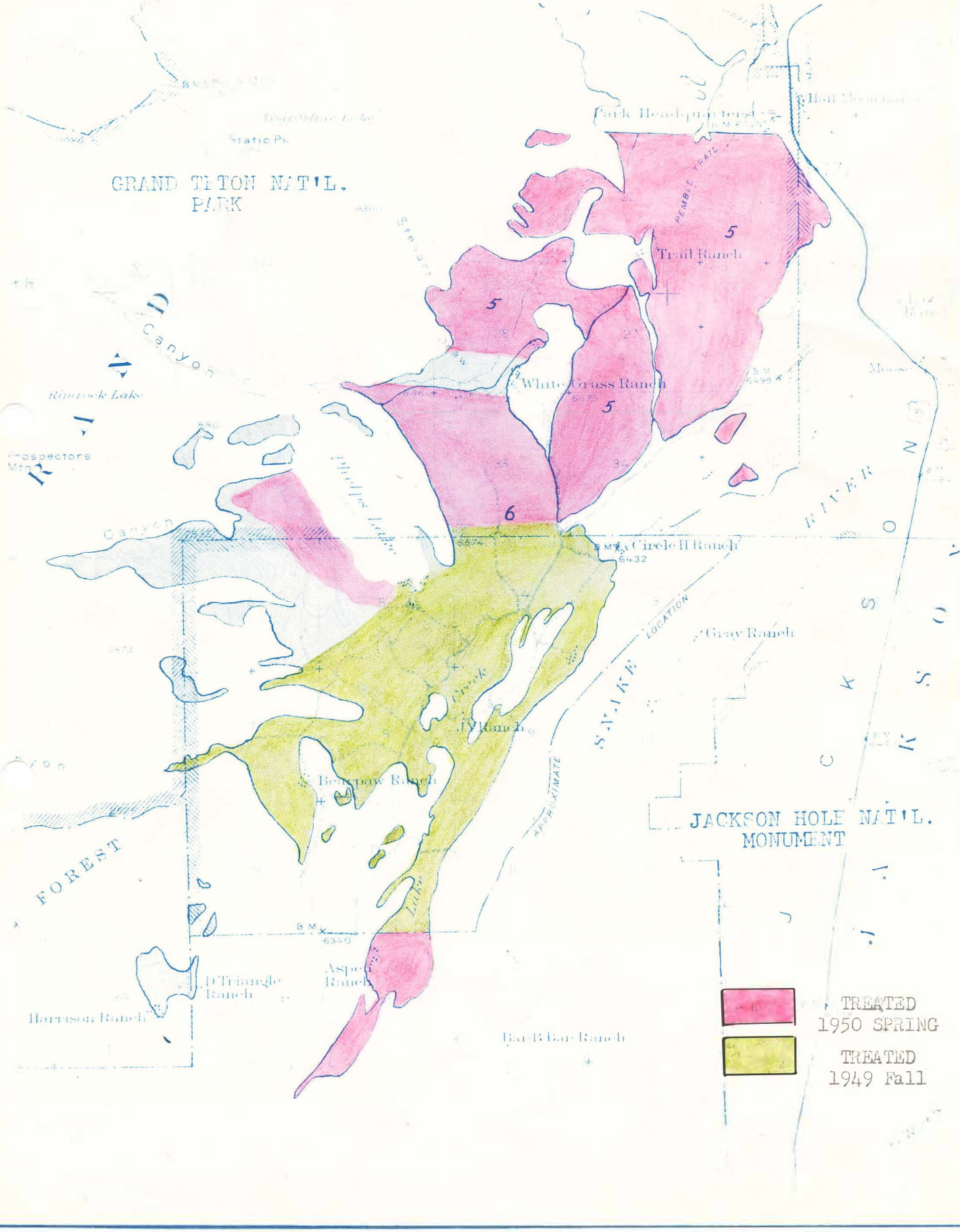
It will be necessary that we have all insect control equipment, maps and report forms readied for an early program start, and all needed equipment and supplies purchased now.

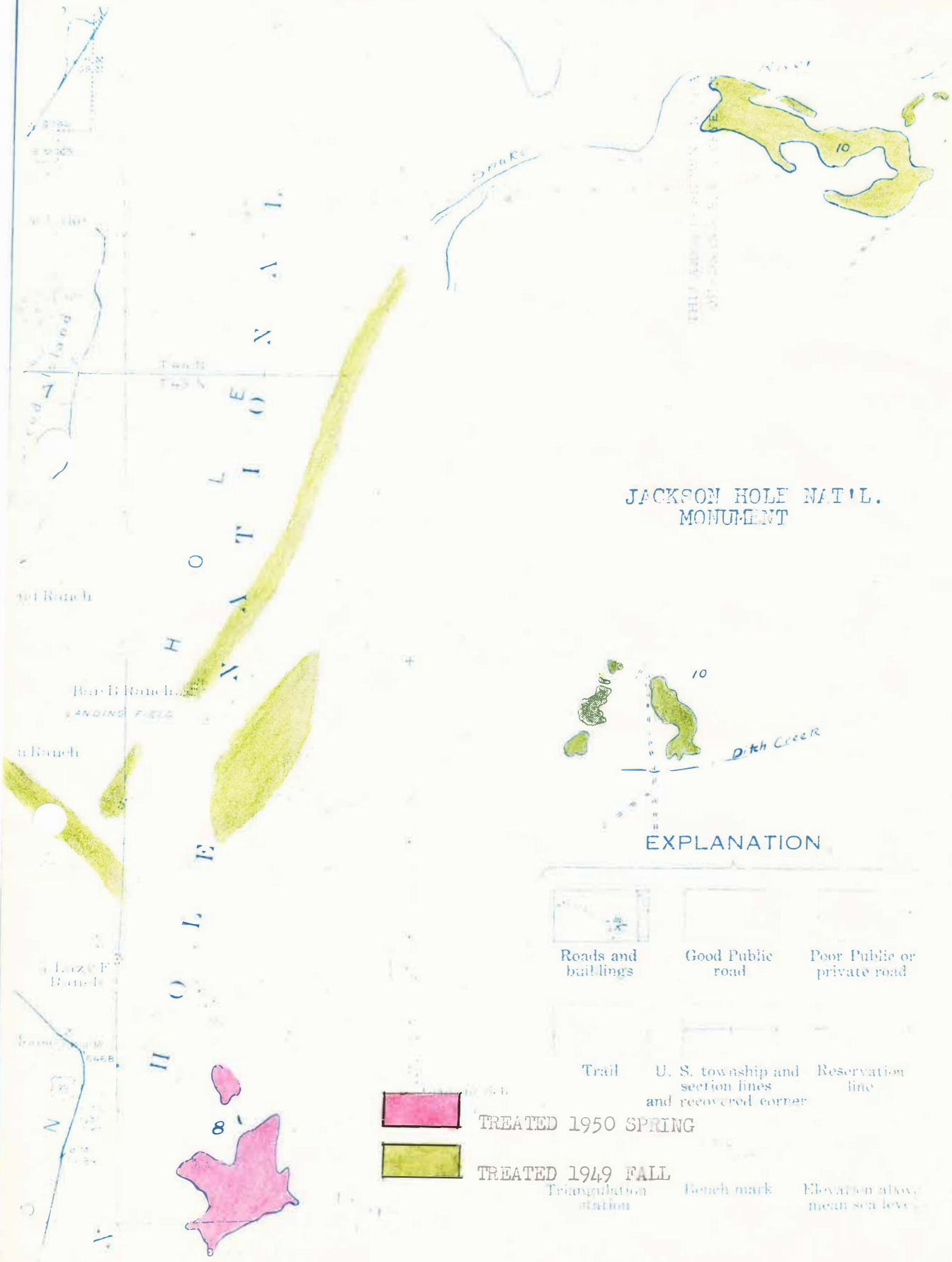
We suggest that our Forest Pest Control Safety Regulations, submitted with our 1948 report, be reviewed by the Region Safety Committee for correction and suggestions.

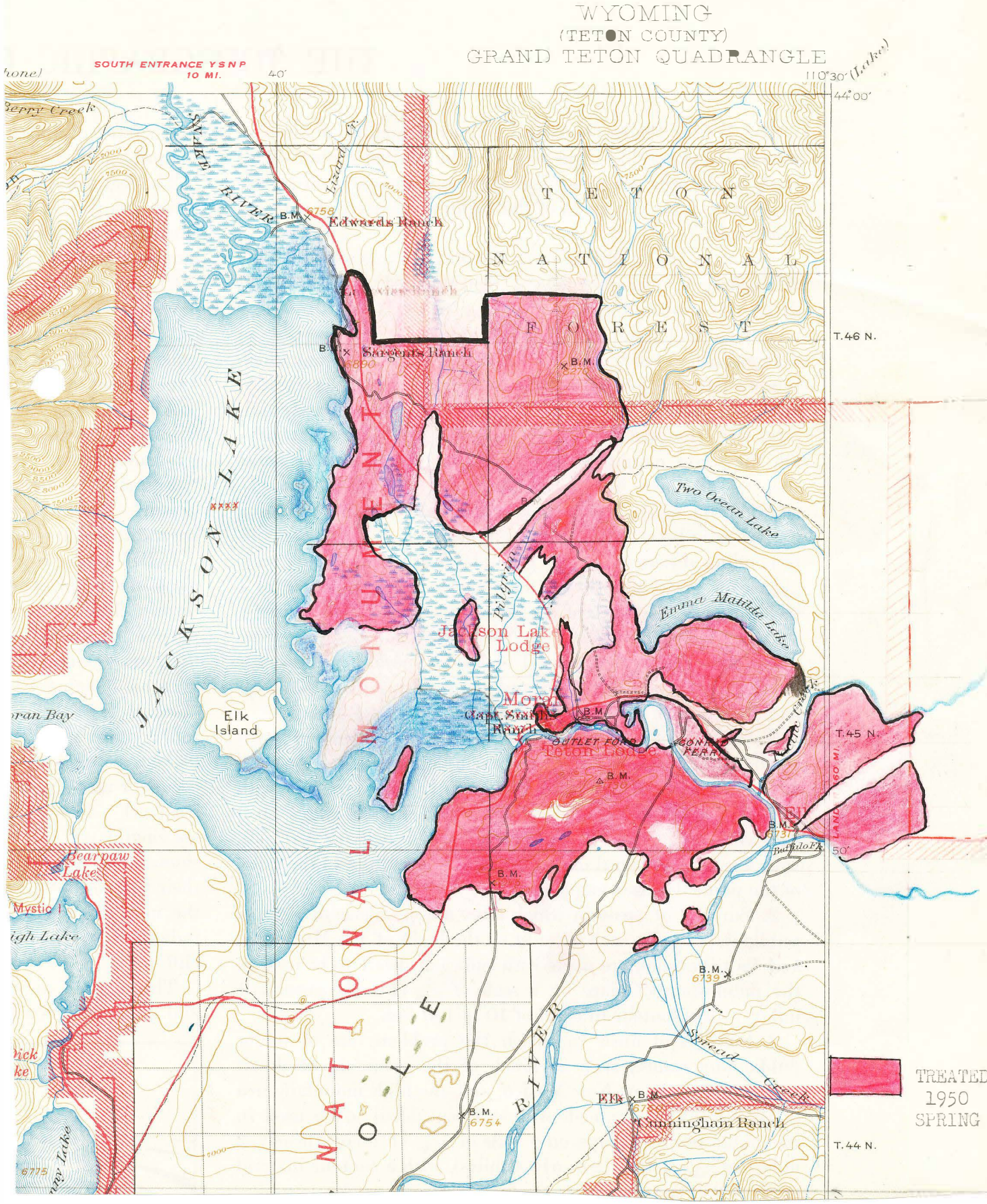
GRAND TETON NAT'L. PARK
JACKSON HOLE NAT'L. MONUMENT
Jenny Lake
Timbered Islands
Wagon Gulch
Hanging Canyon
Symmetry Spires
Ice Point
Storm Point
Mt Owen
Teewinot Mt
East Prong
Garnet
Meadows
Park Headquarters
TREATED
1950 SPRING


GRAND TETON N'T'L. PARK
Moran Bay
Elk Island
Trapper Lake
Mystic Isle
LEIGH LAKE
Boulder
Jenny Lake
Bear
Leigh Lake
9
9A
BM 6885
BM 6905
2 JACKSON HOLE N'T'L. MONUMENT
TREATED
1950 Spring

JACKSON HOLE NAT'L.
MONUMENT
1A
1
2
2
9A
BM 6904
BM 6893
BM 6903
BM 6885
TREATED
1950 SPRING


GRAND TETON NAT'L. PARK
Static Pk.
Park Headquarters
PEBBLE TRAIL
Trail Ranch
White Grass Ranch
Rimrock Lake
Prospectors Mtn.
Circle H Ranch
6432
Gray Ranch
JY Ranch
Beckpaw Ranch
STATE LINE LOCATION
APPROXIMATE
JACKSON HOLE NAT'L. MONUMENT
FOREST
Triangle Ranch
Harrison Ranch
Bar B Bar Ranch
TREATED 1950 SPRING
TREATED 1949 Fall


JACKSON HOLE NAT'L. MONUMENT
EXPLANATION
Roads and buildings
Good Public road
Poor Public or private road
Trail
U. S. township and section lines and recovered corner
Reservation line
TREATED 1950 SPRING
TREATED 1949 FALL
Triangulation station
Bench mark
Elevation above mean sea level
Ditch Creek
10
8


WYOMING
(TETON COUNTY)
GRAND TETON QUADRANGLE
SOUTH ENTRANCE YSNP
10 MI.
40'
110°30' (Lake)
44°00'
Snake River
Lizard Cr.
B.M. 6758
Edwards Ranch
T E T O N
N A T I O N A L
F O R E S T
T. 46 N.
B.M. 6890
Sargents Ranch
B.M. 6870
Two Ocean Lake
Emma Matilda Lake
Pilgrim Cr.
Jackson Lake Lodge
Mount
Capt. Smith Ranch
B.M.
Outlet Fork
Teton Lodge
Bonneville Ferry
B.M.
T. 45 N.
B.M. 6731
Buffalo Fk.
50'
Elk Island
Bearpaw Lake
Mystic I.
B.M.
B.M. 6739
Spread Creek
Elk
B.M.
Cunningham Ranch
B.M. 6754
T. 44 N.
TREATED
1950
SPRING